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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/17/2001

Manish Shah

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03/21/2006

DIGEO, INC C/O STOEL RIVES LLP
201 SOUTH MAIN STREET, SUITE 1100
ONE UTAH CENTER
SALT LAKE CITY, UT 84111

EXAMINER

AHN, SAM K

ART UNIT

PAPER NUMBER

2611

DATE MAILED: 03/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	09/955,537		SHAH ET AL.	
	Examiner		Art Unit	
	Sam K. Ahn		2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 January 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-13 and 18-34 is/are allowed.
- 6) ☒ Claim(s) 1-9 and 14-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 14, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bixby et al. US 2003/0021346 A1 (Bixby) in view of Butler et al. USP 6,205,186 B1 (Butler, cited previously).

Regarding claim 1, Bixby teaches an apparatus comprising: a decoder (22 in Fig.2) to decode a plurality of data streams (outputs of 62,67), said decoder switching between said plurality of data streams (38 between A and B).

However, Bixby does not explicitly teach a state restoration logic to restore said decoder's state.

Butler teaches a state restoration logic to restore said decoder's state (note col.2, lines 54-57, col.7, lines 8-13 and col.10, lines 62-66), wherein restoration is required when new data stream (new slot) is decoded. Therefore, it would have been obvious to one skilled in the art at the time of the invention to recognize that in the system of Bixby, when a new data stream is provided to the decoder, the state restoration is needed for the purpose of eliminating decoder state convergence, as taught by Butler (note col.7, lines 8-13).

Regarding claim 14, Bixby teaches an apparatus comprising: a plurality of data arrays (63,68 in Fig.2) for a plurality of data streams (from 62,67); a buffer (65,70) associated with each of said plurality of data streams; and a state restoration logic (38) for selecting a particular data array (as a result of switching, selects its respective data array) with a particular data stream (output of 62 or 67) upon receiving a signal indicating a switch to decoding said particular data stream (provided by 41 in Fig.3).

However, Bixby does not explicitly teach a plurality of path metric values and stored in the buffer, and the particular set of path metric values selected by the state restoration logic.

Butler teaches a state restoration logic to restore said decoder's state (note col.2, lines 54-57, col.7, lines 8-13 and col.10, lines 62-66), wherein restoration is required when new data stream (new slot) is decoded. Therefore, it would have been obvious to one skilled in the art at the time of the invention to recognize that in the system of Bixby, when a new data stream is provided to the decoder (by switching from 62 to 67 or vice versa), the state restoration is needed for the purpose of eliminating decoder state convergence, as taught by Butler (note col.7, lines 8-13).

Thomas US 5,987,637 teaches wherein a signal with MPEG format is decoded by a Viterbi decoder (note col.1, lines 36-41 and 48). Hence, by incorporating the Viterbi decoder of Butler in the decoder of Bixby, the overall system would be

capable of decoding data in the faster decoding operation, where in a Viterbi decoder, path metric values is provided prior to decoding (note col.7, lines 8-13). Hence, with the Viterbi decoder provided to the decoder of Bixby, path metric values are stored in the buffer of Bixby and through the selection (between 62 and 67), the state restoration logic (38 along with 41 in Fig.3) provides the selection of the particular data array and the set of path metric values in order to properly decode the data stream (62,67).

Regarding claim 16, Butler further teaches wherein said decoder is a Viterbi decoder (56 in Fig.2) that may be described by a trellis diagram and survivor path data, which are the basic features of a Viterbi decoder.

Regarding claim 17, Bixby further teaches wherein said indication of a switch from decoding one stream to another occurs are controlled by a playlist (25 in Fig.1). And although Bixby does not explicitly teach that the switching control occurs at regular periodic interval, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to recognize that by the demand of a user, the playlist may be programmed that the switching occurs at regular periodic interval. Applicant has not disclosed that such switching provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with other interval as long as the playlist

provides desired video stream. Therefore, it would have been obvious to program the playlist to one of ordinary skill in this art to modify the playlist to obtain the invention as specified in claim.

2. Claims 2-7,9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bixby et al. US 2003/0021346 A1 (Bixby) in view of Butler et al. USP 6,205,186 B1 (Butler, cited previously) and Kaewell, Jr. USP 6,404,828 B2 (Kaewell, cited previously).

Regarding claim 2, Bixby in view of Butler teaches all subject matter claimed, as applied to claim 1. However, Butler does not explicitly teach wherein said state restoration logic comprises one or more memory arrays for storing said state associated with each of said plurality of data streams.

Kaewell teaches one or more memory arrays for storing state associated with each of plurality of data streams (69,73 in Fig.3B). Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the teaching of Kaewell by incorporating the memory arrays in the state restoration logic of Butler for the purpose of implementing a Viterbi algorithm, as taught by Kaewell (note col.6, lines 53-58). Thus, although Butler does not explicitly teach a memory array, it would have been obvious to one skilled in the art at the time of the invention that in order to properly implement the function of the Viterbi decoder (56 in Fig.2) of Butler, the memory arrays would be required, as taught by Kaewell.

Regarding claim 3, Bixby in view of Butler, as previously explained, teaches plurality of data streams (first data stream followed by a second data stream) decoded by the decoder. Thus, at the time of the decoding process, the number of the memory array would be equivalent to the number of data stream of having one, decoding one data stream after another.

Regarding claims 4-6, Butler further teaches wherein said decoder is a Viterbi decoder (56 in Fig.2) that may be described by a trellis diagram and survivor path data, which are the basic features of a Viterbi decoder. Therefore, it would have been obvious to one skilled in the art at the time of the invention to recognize that the Viterbi decoder of Butler may be incorporated in the decoder of Bixby for the purpose of taking advantage of benefits Viterbi decoder provides, such as performing maximum likelihood decoding (note col.2, lines 20-24) resulting in faster decoding operation. Thomas US 5,987,637 teaches wherein a signal with MPEG format is decoded by a Viterbi decoder (note col.1, lines 36-41 and 48). Hence, by incorporate the Viterbi decoder of Butler in the decoder of Bixby, the overall system would be capable of decoding data in the faster decoding operation.

Regarding claims 7 and 15, Kaewell further teaches wherein said one or more memory arrays are tracing decode arrays (75 in Fig.3B). And although Kaewell

does not explicitly teach the tracing to be a forward tracing, it would have been obvious to one skilled in the art at the time of the invention to analyze that the forward tracing or even reverse tracing are well-known implementation performed at a Viterbi decoder. Thus, for the purpose of applying a robust Viterbi decoder, one skilled in the art would be motivated to include a forward tracing and even a reverse tracing in the Viterbi decoder.

Regarding claim 9, Kaewell further teaches an accumulator buffer (69 in Fig.3B) for temporarily storing accumulator values associated with each of said plurality of data streams, said accumulator values representing path metric values and being readable from said accumulator buffer (note col.6, lines 53-58). And although Kaewell does not explicitly teach wherein said accumulator buffer is to restore said state, it would have been obvious to one skilled in the art at the time of the invention to analyze through the teaching Kaewell, as previously explained of Butler incorporating the memory array, may as well further store the metric values, as also taught by Kaewell (note acol.6, lines 53-58) for the purpose of updating the trellis levels and thus implement a robust Viterbi decoding algorithm.

3. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bixby et al.

US 2003/0021346 A1 (Bixby) in view of Butler et al. USP 6,205,186 B1 (Butler, cited

previously) and Kaewell, Jr. USP 6,404,828 B2 (Kaewell, cited previously) and in further view of Wiedeman USP 6,654,357 B1 (cited previously).

Regarding claim 8, Bixby in view of Butler and Kaewell teach all subject matter claimed, as applied to claim 1 or 20. Butler nor Kaewell, however, is silent regarding said data streams comprising multimedia data transmitted from a satellite transponder.

Wiedeman teaches satellite transponder (12) transmitting data streams to a CDMA system (52 in Fig.2). Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the teaching of Wiedeman in the system of Butler by receiving satellite signals for the purpose of increasing the coverage of the system by receiving signals from the satellite transponder. And furthermore, the signal may further be a multimedia data wherein the data may carry ring tones, pictures or music transmitted via the satellite transponder.

Allowable Subject Matter

4. Claims 10-13 and 18-34 are allowed.
5. The following is a statement of reasons for the indication of allowable subject matter:

Present application discloses a Viterbi decoder wherein a buffer stores state information of the decoder. Prior art teaches or suggest in combination of decoding plurality of data streams and storing state information. However, prior art does not teach when the decoder is interrupted during the decoding of a data stream, storing the state information of the decoder, and after the completion of the interruption,

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retrieving the stored state information back to the decoder and continuing the decoding operation of the data stream.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Thomas US 5,987,637 teaches wherein a Viterbi decoder decodes MPEG-2 data stream.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Ahn whose telephone number is (571) 272-3044. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**MOHAMMED GHAYOUR
SUPERVISORY PATENT EXAMINER**

Sam K. Ahn
3/17/06